
Appendix C

ELECTRONIC TECHNICAL INFORMATION RESOURCES

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EPA Sources of Information on Innovative Remediation and Site Characterization Technologies

Listed below are U.S. Environmental Protection Agency (EPA) sources of information on Innovative Remediation and Site Characterization Technologies. Sources of information include: electronic information sources in the form of databases or Internet sites, as well as programs, partnerships and organizations accessible on the Internet.

REMEDIATION TECHNOLOGIES

Electronic Information Sources

Innovative Remediation Technologies: Field-Scale Demonstration Projects in North America, Second Edition and Database. The searchable database contains information about 600 completed innovative technology field demonstration projects in North America. The purpose of the database is to consolidate key information from innovative demonstration projects into a single source and present that information in a format that enables the user to easily identify innovative technologies that may be appropriate to the user's particular site remediation needs. The database, which is limited to completed demonstration projects and a small number of full-scale cleanup efforts, does not include emerging technologies or laboratory-scale projects. A summary report, EPA 542-B00/004 of the same name is available from EPA's National Service Center for Environmental Publications or accessed free of charge from the CLU-IN Internet site at <http://clu-in.org/products/nairt>.

Hazardous Waste Clean-Up Information (CLU-IN) Home Page. CLU-IN is a streamlined source of information about innovative remediation and site characterization technologies for hazardous waste cleanup professionals. It provides access to information about programs, organizations, publications, and other tools for EPA and other Federal and State personnel, consulting engineers, technology developers and vendors, remediation contractors, researchers, community groups, and individual citizens. Access to various pools of information is presented in the form of downloadable publications and databases. Sources of additional information on the Internet also are presented through a series of links. CLU-IN is sponsored by EPA's Technology Innovation Office (TIO). For additional information about the CLU-IN home page, call (301) 589-5318. CLU-IN can be accessed through the Internet at <http://clu-in.org>.

Innovative Treatment Technologies: Annual Status Report (Tenth Edition) EPA/542/R-01/004 This report contains information about remedies selected at contaminated waste sites. The sites include Superfund remedial and removal sites and some non-Superfund sites being remediated by the U.S. Department of Energy (DOE), the U.S. Department of Defense (DoD), or under the RCRA corrective action program. The EPA REACHIT

online system (see description) includes such site-specific data as contaminants and media treated, project status, and site contact. If you have questions or comments about the system, please call EPA's TIO at (301) 589-5318. The report can be downloaded free of charge from the CLU-IN Internet site at <http://clu-in.org/usr>. To obtain a copy of the report, call EPA's National Service Center for Environmental Publications at (800) 490-9198 or (513) 489-8190.

EPA Remediation and Characterization Innovative Technologies (EPA REACH IT). EPA REACH IT, sponsored by EPA's Technology Innovation Office, is a new system that lets environmental professionals use the power of the Internet to search, view, download, and print information about innovative remediation and characterization technologies. EPA REACH IT provides information about more than 650 service providers that offer almost 1,300 remediation technologies and more than 180 characterization technologies. EPA REACH IT combines information from three established EPA databases, the Vendor Information System for Innovative Treatment Technologies (VISITT), the Vendor Field Analytical and Characterization Technologies System (Vendor FACTS), and the Innovative Treatment Technologies (ITT), to give users access to comprehensive information about treatment and characterization technologies and their applications. It combines information submitted by technology service providers about remediation and characterization technologies with information from EPA, the U.S. Department of Defense (DoD), the U.S. Department of Energy (DOE), and state project managers about sites at which innovative technologies are being deployed. EPA REACH IT can be accessed through the Internet at <http://www.epareachit.org>. It is best viewed using Netscape Navigator or Microsoft Internet Explorer, version 4.0 or higher.

Site Remediation Technology Infobase. The Site Remediation Technology Infobase was founded by EPA and prepared for the federal agencies participating in the Federal Remediation Technologies Roundtable. It provides information on federal cleanup programs; federal site remediation technology development assistance programs, and databases; federal electronic resources for site remediation; other electronic resources for site remediation technology information; a bibliography of selected federal publications on alternative and innovative site remediation technologies; technology survey reports; and technology program contacts for DOD, DOE, and EPA. It can be accessed through the Internet at:

<<http://www.frtr.gov/publications/infobse/98.html>>.

Cost and Performance Catalog of Case Studies. The Cost and Performance Catalog of Case Studies is a joint effort of Federal Remediation Technologies Roundtable members to publish case study reports on full- and demonstration-scale remediation projects. As of June 2002, member agencies of the Roundtable have completed 313 cost and performance case study reports. The reports (March 1995-June 2002) can be accessed by the Cost and Performance Case Studies Search:

<<http://bigisland.ttclients.com/frtr/search.html>>.

Remediation Technologies Screening Matrix and Reference Guide, Version 3.0. The Remediation Technologies Screening Matrix and Reference Guide, Version 3.0, prepared for federal agencies participating on the Federal Remediation Technology Roundtable (FRTR), provides a “yellow pages” of remediation technologies information. The guide is intended to assist remedial project managers (RPM) to screen and evaluate candidate cleanup technologies and select the best remedial alternative(s) for contaminated installations, facilities, or waste sites. The guide also assists environmental professionals in gathering essential descriptive information on the respective technologies. The guide incorporates cost and performance data to the maximum extent available and focuses primarily on demonstrated technologies. However, information on emerging technologies also is included in the guide. The guide can be accessed through the Internet at <<http://www.frtr.gov>>.

TechDirect. TechDirect, hosted by EPA’s TIO, is an information service that highlights new publications and events of interest to environmental professionals. Information about site characterization and remediation technologies is available through this Internet subscription service. Once a month, the service distributes by electronic mail a message describing the availability of publications and announcements of events. For publications, the message explains how to obtain a hard copy or how to download an electronic version from the Internet. Subscribe to TechDirect and view current and past versions through the Internet at <<http://clu-in.org>>.

Programs, Partnerships, And Organizations

EPA Library Network Program. The EPA National Library Network Program is a repository of information from EPA’s Headquarters, Regional and Field Offices, Research Centers, and specialized laboratories throughout the country. The Library Network provides access to its collection through the On-line Library System (OLS), a menu-driven database of the library’s holdings. The OLS provides users with the ability to perform online searches

by author, title, or keyword. The EPA National Library Network Program can be accessed through the Internet at <<http://www.epa.gov/natlibra>>.

Federal Remediation Technologies Roundtable (FRTR). FRTR is an interagency working group that provides a forum for the exchange of information regarding the development and demonstration of innovative technologies for the remediation of hazardous waste sites. The forum also synthesizes the technical knowledge that Federal Agencies have compiled and provides a more comprehensive record of performance and cost of the technologies. Participating agencies include DoD, the U.S. Army Corps of Engineers, the U.S. Navy, the U.S. Air Force, DOE, the U.S. Department of the Interior, and EPA. FRTR can be accessed through the Internet at <<http://www.frtr.gov>>.

Ground-Water Remediation Technologies Analysis Center (GWRTAC). GWRTAC was established through a cooperative agreement between the National Environmental Technology Applications Center (NETAC) of the Center for Hazardous Materials Research (CHMR) and EPA. The goal of GWRTAC is to compile, analyze, and disseminate information about innovative ground-water remediation technologies to industry, the research community, contractors, government, investors, and the public. The center currently is compiling information to be included in databases of interactive case studies and vendor information that will be available on the GWRTAC Internet site. GWRTAC can be accessed through the Internet at <<http://www.gwrtac.org>>.

Office of Research and Development (ORD) is the scientific and technological arm of EPA. Comprised of three headquarters offices, three national research laboratories and two national centers, ORD is organized around a basic strategy of risk assessment and risk assessment management to remediate environmental and human health problems. ORD focuses on the advancement of basic peer-reviewed scientific research and the implementation of cost-effective, common sense technology. Fundamental to ORD’s mission is a partnership with the academic scientific community through extramural research grants and fellowships to help develop the sound environmental research necessary to ensure effective policy and regulatory decisions. ORD also implements such programs as the Superfund Innovative Technology Evaluation (SITE) program which focuses on treatment technologies and EPA’s Environmental Technology Verification Program (ETV) which focuses on site characterization technologies. ORD can be accessed through the Internet at <<http://www.epa.gov/ORD/>>.

Remediation Technologies Development Forum (RTDF). RTDF was established by EPA to foster public-private partnerships that would conduct laboratory and applied research to develop, test, and evaluate innovative remediation technologies. RTDF’s home page provides access to information about various remediation technologies currently

being designed, developed and evaluated through six active action teams of RTDF including: the Bioremediation of Chlorinated Solvents Consortium, the Permeable Reactive Barriers Action Team, the Sediments Remediation Action Team, the In-Place Inactivation and Natural Ecological Restoration Technologies (IINERT) Soil-Metals Action Team, the Phytoremediation of Organics Action Team, and the NAPC Cleanup Alliance. RTDF can be accessed through the Internet at <<http://www.rtdf.org>>.

Superfund Innovative Technology Evaluation (SITE) Demonstration Program. The SITE Demonstration program was established by EPA's Office of Solid Waste and Emergency Response and the Office of Research and Development to encourage the development and implementation of innovative treatment technologies for the remediation of hazardous waste sites, and monitoring and measurement. Through the program, technologies are field-tested on hazardous waste materials and engineering and cost data are gathered on the innovative technology so that potential users can assess the technology's applicability to a particular site. Data collected during the field demonstrations are used to assess the performance of the technology, the potential need for pre- and post-processing of the waste, applicable types of wastes and waste matrices, potential operating problems, and approximate capital and operating costs. The collected information is then provided in a Innovative Technology Evaluation Report, Technology Capsule, and Demonstration Bulletin. These reports evaluate all available information on the technology and analyze its overall applicability to other site characteristics, waste types, and waste matrices. Testing procedures, performance and cost data, and quality assurance and quality standards also are presented. The SITE Demonstration program can be accessed through the Internet at <<http://www.epa.gov/ORD/SITE>>.

Interstate Technology and Regulatory Council (ITRC). ITRC is a state-led coalition working together with industry and stakeholders to achieve regulatory acceptance of environmental technologies. ITRC consists of more than 35 states, the District of Columbia, multiple federal partners, industry participants, and other stakeholders, cooperation to break down barriers and reduce compliance costs, making it easier to use new technologies and helping states maximize resources. Originating in 1995 from a previous initiative by the Western Governors Association (WGA). ITRC brings together a diverse mix of environmental experts and stakeholders from both the public and private sectors to broaden and deepen technical knowledge and streamline the regulation of new environmental technologies. ITRC accomplishes its mission in two ways: it develops guidance documents and training courses to meet the needs of both regulators and environmental consultants, and it works with state representatives to ensure that ITRC products and services have maximum impact among state environmental agencies and technology users. ITRC technical work teams develop

guidance documents and both classroom and Internet-based training courses to meet the information needs of regulatory staff, technology vendors, and environmental consultants. These products help state environmental agencies gain valuable technical knowledge and develop consistent regulatory approaches for reviewing and approving specific technologies. State regulators lead ITRC technical teams, which rely on broad-based participation from federal agencies, industry, academia, and other stakeholders in building collective knowledge and collaborative products. ITRC can be accessed through the Internet at <<http://www.itrcweb.org>>.

Technology Innovation Office (TIO). The U.S. Environmental Protection Agency's (EPA) TIO was created in 1990 to act as an advocate for new technologies. TIO's mission is to increase the application of innovative treatment technologies to contaminated waste sites, soils, and groundwater. To meet that mission, TIO has expanded its focus from treatment technologies to include site characterization technologies in order to improve the remediation process. TIO has encouraged and relied on cooperative ventures with other partners to accomplish many of its goals. This effort to effectively use resources has led to numerous joint efforts that have enhanced the state of both remediation and site characterization. For additional information about TIO, contact Jeff Heimerman of EPA's TIO at (703) 603-7191. TIO can be accessed through the Internet at <<http://clu-in.org/tiomiss.htm>>.

SITE CHARACTERIZATION TECHNOLOGIES

Electronic Sources of Information

EPA, National Exposure Research Laboratory - Hazardous Waste Site Characterization (on CD-ROM) (EPA 600-C-96-001). The Hazardous Waste Site Characterization CD-ROM, developed by NERL's ESD-LV, compiles guidance documents and related software to aid environmental professionals in the complex, multidisciplinary, characterizing of hazardous waste sites. The CD-ROM is a compilation of computer programs related to EPA's RCRA and Superfund programs that can be printed, as well as searched by key words. Using the CD-ROM requires a personal computer with DOS Version 3.0 or higher, 640K of Ram, and 3 MB of hard disk space. A math co-processor is recommended but not required. The CD-ROM can be ordered on-line through the NTIS Internet site at <www.ntis.gov>.

Field Sampling and Analysis Technologies Matrix. The Matrix, developed by participating agencies of the Federal Remediation Technologies Roundtable (FRTR), is a matrix and reference guide that is intended to provide users with an understanding of the site characterization technologies available to them and the applicability of various technologies to their particular problem(s). The Matrix

provides a general understanding of state-of-the-art technologies for site characterization. The Matrix and reference guide also enhances technology information transfer and provides much needed comparison among competing technologies. The Matrix can be accessed through the Internet at [<http://www.frtr.gov/site>](http://www.frtr.gov/site).

TechDirect. TechDirect, hosted by EPA's TIO, is an information service that highlights new publications and events of interest to environmental professionals. Information about site characterization and remediation technologies are available through this Internet subscription service. Approximately once a month, the service distributes by electronic mail a message describing the availability of publications and announcements of events. For publications, the message explains how to obtain a hard copy or how to download an electronic version from the Internet. Subscribe to TechDirect and view current and past versions through the Internet at [<http://clu-in.org/membersh.htm>](http://clu-in.org/membersh.htm).

Programs, Partnerships, and Organizations

Consortium for Site Characterization and Technology (CSCT). CSCT was established as one of 12 pilot projects currently implemented by EPA's Environmental Technology Verification (ETV) Program. The CSCT is a partnership program among the U.S. Environmental Protection Agency (EPA), the U.S. Department of Defense (DoD), and the U.S. Department of Energy (DOE) that is responsible for evaluating and verifying the performance of innovative site characterization technologies. The CSCT provides support to technology developers, evaluates and verifies data generated during demonstrations, and develops and disseminates information about the performance of site characterization technologies. CSCT can be accessed through the Internet at [<http://clu-in.org/csct.htm>](http://clu-in.org/csct.htm).

Environmental Technology Verification Program. The ETV program seeks to provide credible performance data on environmental technologies from independent third parties under the auspices of EPA. It verifies the performance of innovative technical solutions to problems that threaten human health or the environment. Managed by EPA's ORD, ETV was created to substantially accelerate the entrance of new environmental technologies into domestic and international marketplaces. It supplies buyers of technologies, developers of those technologies, consulting engineers, states, and EPA regions with high-quality data on the performance of new technologies. ETV expands on past verification efforts, such as those conducted under the SITE program for remediation technologies. ETV currently implements 10 pilot projects, including the Consortium for Site Characterization Technology (CSCT). The ETV

program can be accessed through the Internet at [<http://www.epa.gov/etv>](http://www.epa.gov/etv).

EPA Library Network Program. The EPA National Library Network Program is a repository of information from EPA's Headquarters, Regional and Field Offices, Research Centers, and specialized laboratories throughout the country. The Library Network provides access to its collection through the On-line Library System (OLS), a menu-driven database of the library's holdings. The OLS provides users with the ability to perform online searches by author, title, or keyword. The material on OLS is updated every two weeks. The EPA National Library Network Program can be accessed through the Internet at [<http://www.epa.gov/natlibra>](http://www.epa.gov/natlibra).

Office of Research and Development (ORD). ORD, under the Assistant Administrator, Norine E. Noonan, Ph. D., is the scientific and technological arm of EPA. Comprised of three headquarters offices, three national research laboratories and two national centers, ORD is organized around a basic strategy of risk assessment and risk assessment management to remediate environmental and human health problems. ORD focuses on the advancement of basic peer-reviewed scientific research and the implementation of cost-effective, common sense technology. Fundamental to ORD's mission is a partnership with the academic scientific community through extramural research grants and fellowships to help develop the sound environmental research necessary to ensure effective policy and regulatory decisions. ORD also implements such programs as the Superfund Innovative Technology Evaluation (SITE) program which focuses on treatment technologies and EPA's Environmental Technology Verification Program (ETV) which focuses on site characterization technologies. ORD can be accessed through the Internet at [<http://www.epa.gov/ORD>](http://www.epa.gov/ORD).

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